

SPDT Failsafe DC to 12 GHz Electro-Mechanical Relay Switch, up to 600W, 12V, N

The FMSW6348 is a Single Pole Double Throw (SPDT) electromechanical relay switch that operates across a wide frequency range of DC to 12 GHz and can handle up to 600 Watts of CW input power in a break before make condition. The design features a Failsafe actuator and is rated for 2M life cycles for high reliability operation. Impressive performance includes insertion loss less than 0.15 dB typical and isolation greater than 90 dB typical. The Failsafe actuator has a +12 Vdc bias voltage, and operates over a temperature range of -25°C to +70°C. The rugged and compact package assembly supports N Female connectors and a DB-9 Connector for DC Control. And for highly reliable operation, the model is guaranteed to meet MIL-STD-202 environmental test conditions for shock and random vibration.

Electrical Specifications

| | |
|--------------------|-------------------|
| Switch Type | SPDT |
| Actuator Type | Failsafe |
| Switching Sequence | Break before Make |

| Description | Min | Typ | Max | Units |
|----------------------------------|-----|--------|-------|-------|
| Frequency Range | DC | | 12 | GHz |
| Impedance | | 50 | | Ohms |
| Operating Voltage | 11 | 12 | 13 | Volts |
| Actuating Set Current @ 12 Volts | | 200 | | mA |
| VSWR | | 1.25:1 | 1.4:1 | |
| Insertion Loss | | 0.3 | 0.5 | dB |
| Isolation | 70 | 90 | | dB |
| Input Power (CW) | | | 200 | Watts |
| Switching Time | | | 20 | ms |

Performance by Frequency

| Description | F1 | F2 | F3 | F4 | F5 | Units |
|---------------------|--------|-------|-------|--------|----|-------|
| Frequency Range | DC - 1 | 1 - 4 | 4 - 8 | 8 - 12 | | GHz |
| VSWR, Max | 1.25:1 | 1.3:1 | 1.4:1 | 1.4:1 | | |
| Insertion Loss, Max | 0.3 | 0.4 | 0.4 | 0.5 | | dB |
| Isolation, Min | 90 | 80 | 80 | 70 | | dB |
| Power In, Typ (CW) | 600 | 300 | 230 | 200 | | Watts |

Mechanical Specifications

Size

| | |
|---------------------------|----------------------|
| Weight | 0.3975 lbs [180.3 g] |
| Body Material and Plating | Aluminum |
| Package Type | Connectorized |
| Operating Life | 2,000,000 Cycles |



Features:

- Single Pole Double Throw
- DC to 12 GHz Frequency Range
- Isolation greater than 90 dB typical
- 2M Cycle Min Operating Life
- +12 Volt DC
- 600 Watt average Power
- Failsafe Actuator
- -25 to +70°C Operating Temperature
- Insertion Loss as low as 0.2 dB Max
- VSWR as low as 1.25:1 max
- N Female RF connectors
- DB-9 Connector for DC Control
- Hot Switching Capability - Consult Factory
- S-Parameter Data available upon request

Applications:

- High Performance Relay Switch
- Military Communications
- Communications Systems
- Test & Measurement

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Connectors

| | |
|---|------------------------|
| RF Connector Type | N Female |
| RF Connector Contact Material & Plating | Beryllium Copper, Gold |
| RF Connector Body Material & Plating | Aluminum, Nickel |
| Control Connector | 9-Pin D-Subminiature |

Environmental Specifications

Temperature

| | |
|-----------------|-------------------|
| Operating Range | -25 to +70 deg C |
| Storage Range | -55 to +100 deg C |

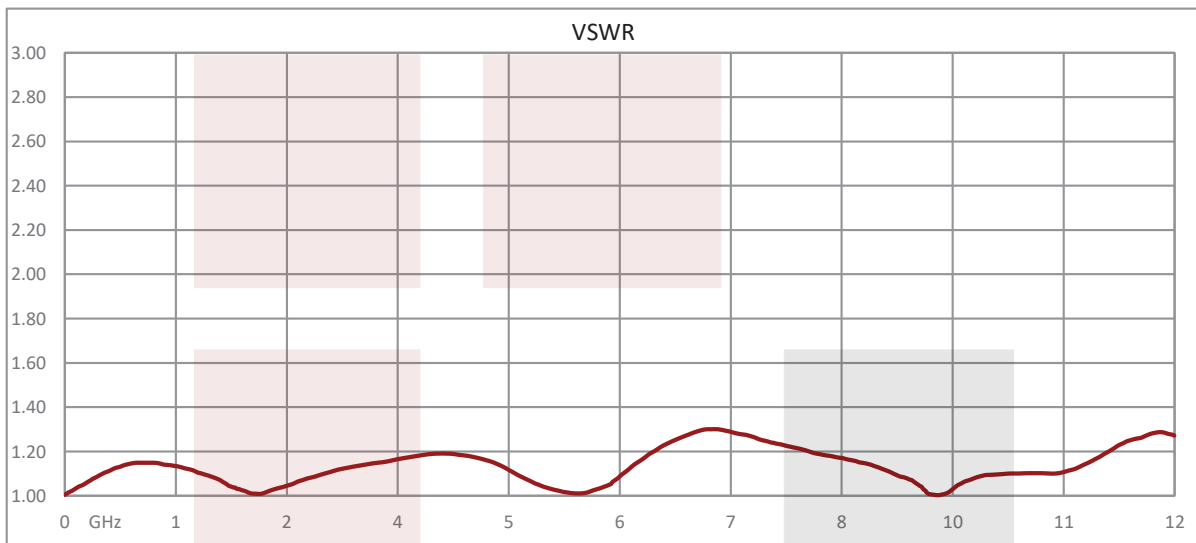
| | |
|-----------|---|
| Shock | MIL-STD-202 Method 213, Cond. D 500G Non Operating |
| Vibration | MIL-STD-202 Method 214, Cond. D 10G RMS Non Operating |

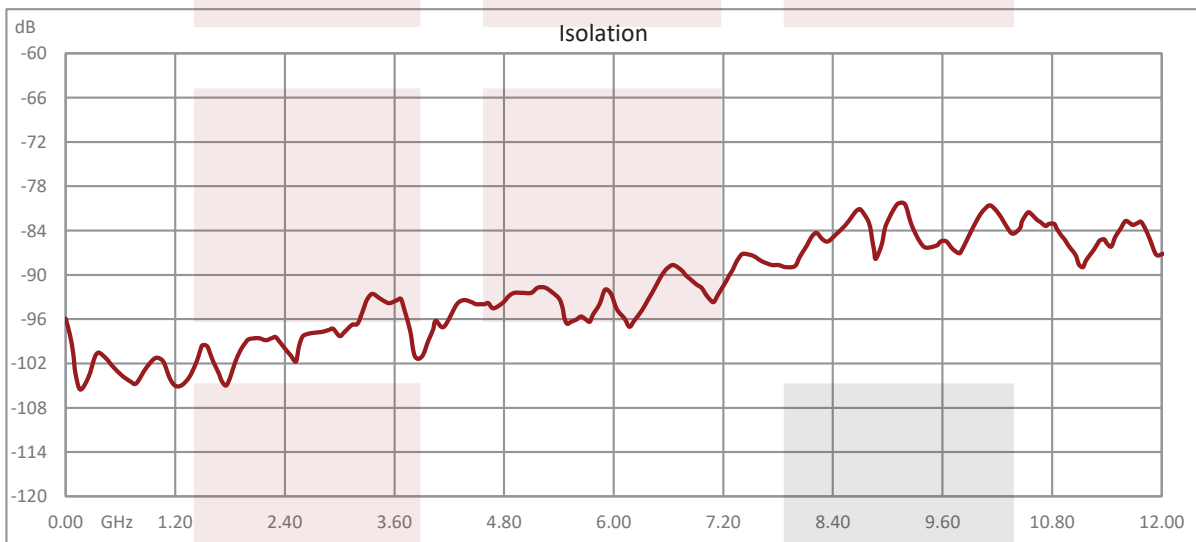
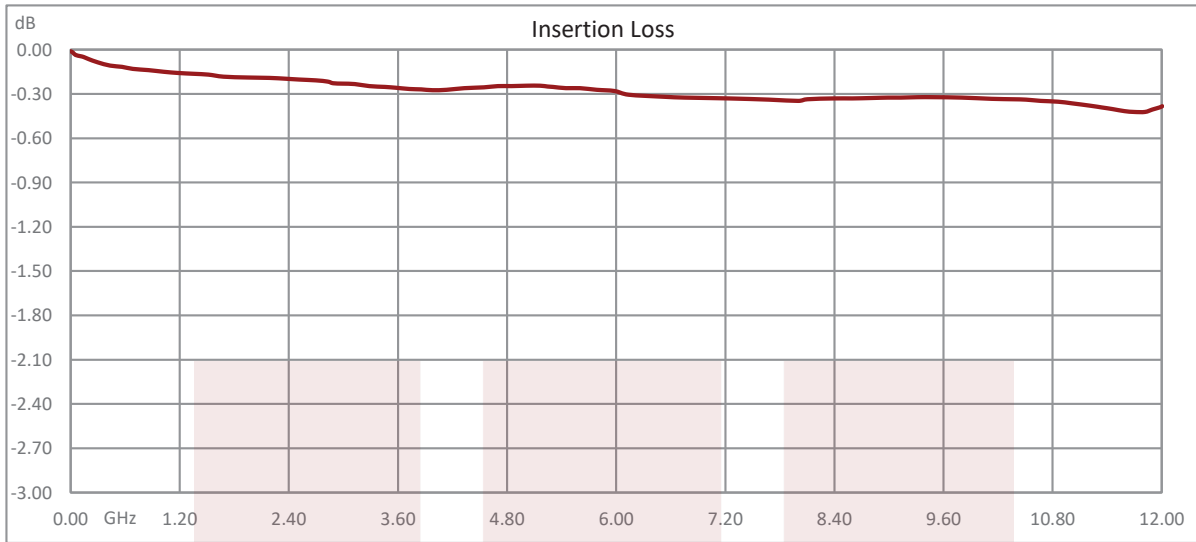
Compliance Certifications (see [product page](#) for current document)

Plotted and Other Data

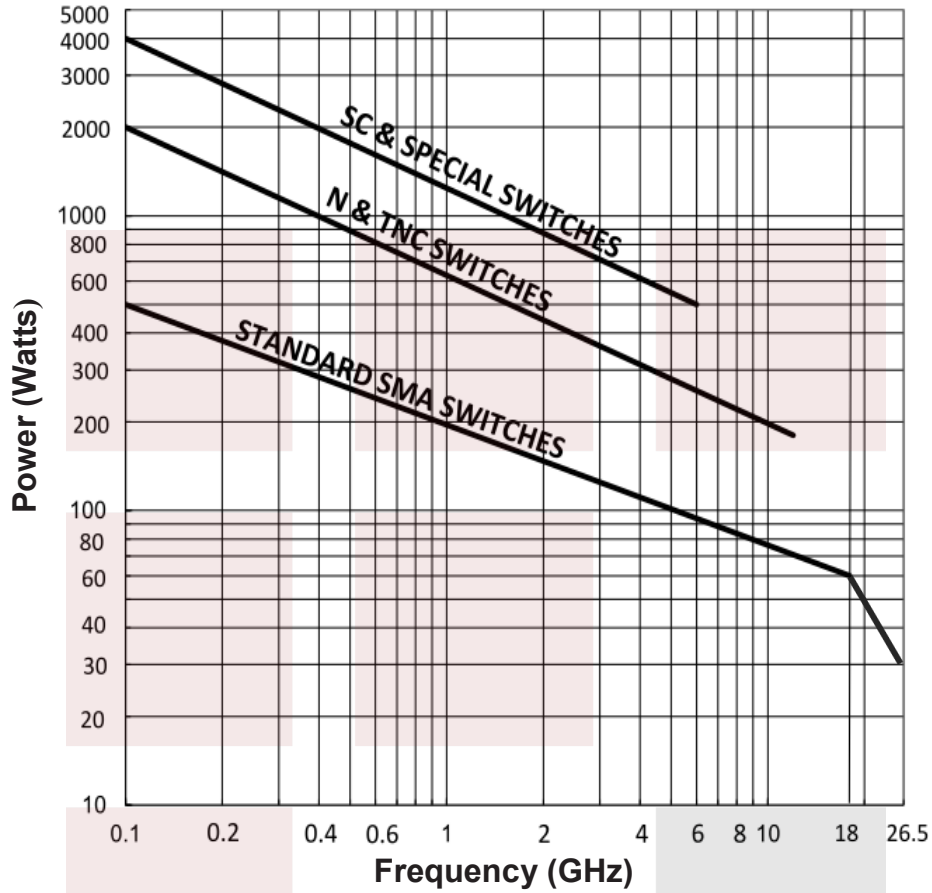
Notes:

Typical Performance Data





Power Handling vs. Frequency & Connector Type



Environmental and Test Conditions:

- Ambient temperature of 25°C or less
- Altitude: Sea Level
- Load VSWR: 1.20:1 max.
- Cold Switching

SPDT Failsafe DC to 12 GHz Electro-Mechanical Relay Switch, up to 600W, 12V, N from Fairview Microwave is in-stock and available to ship same-day. All of our RF/microwave products are available off-the-shelf from our ISO 9001:2008 certified facilities in Allen, Texas. Fairview Microwave is RF on-demand.

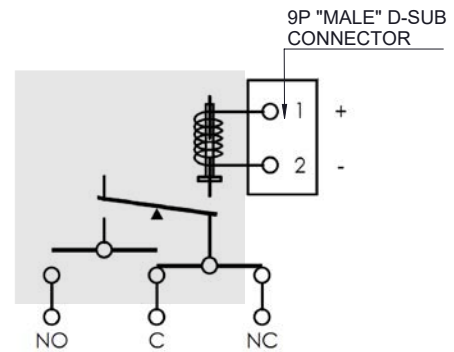
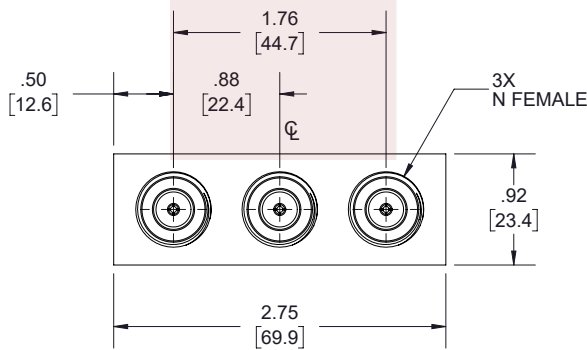
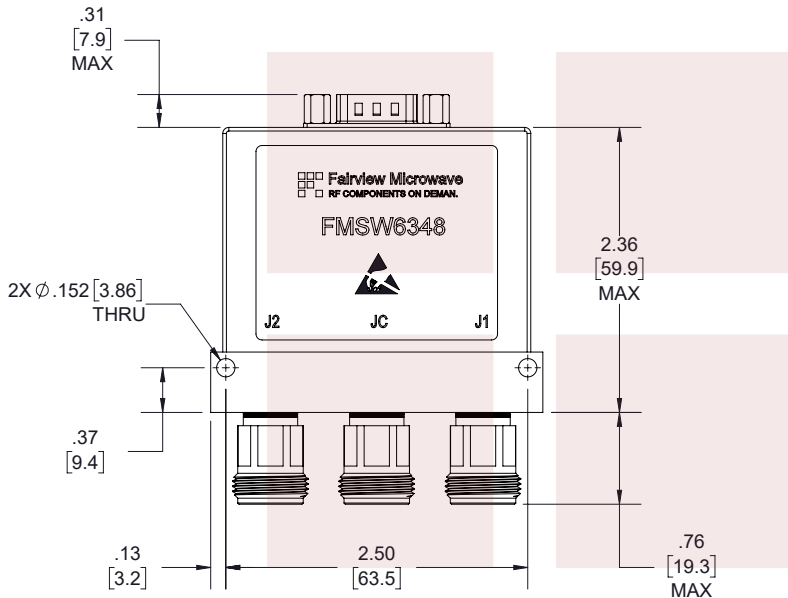
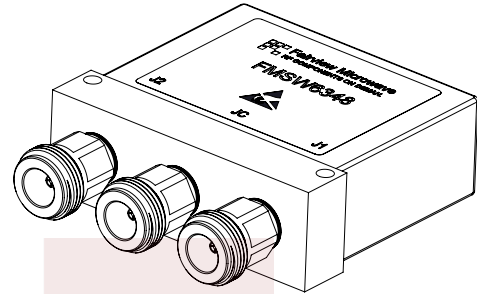
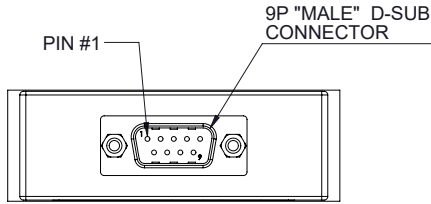
For additional information on this product, please click the following link: [SPDT Failsafe DC to 12 GHz Electro-Mechanical Relay Switch, up to 600W, 12V, N FMSW6348](#)

URL: <https://www.fairviewmicrowave.com/spdt-failsafe-12-ghz-electro-mechanical-relay-switch-200w-12v-n-fmsw6348-p.aspx>

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| REVISIONS | | | |
|-----------|--------------|----------|----------|
| REV. | DESCRIPTION | DATE | APPROVED |
| A | PCR FMSW6397 | 1/6/2020 | T.GALLA |



SCHEMATIC SHOWN IN FAILSAFE POSITION

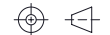
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TITLE
SPDT Failsafe DC to 12 GHz Electro-Mechanical Relay Switch, up to 600W, 12V, N

UNLESS OTHERWISE SPECIFIED LEADING DIMENSIONS ARE INCHES
DIMENSIONS IN [] ARE MILLIMETERS

| | | | |
|--------------------|------------------|---|--|
| TOLERANCES: | | CABLE LENGTH (L) TOLERANCES: | |
| .X = ±.2 [5.08] | FRACTIONS ± 1/32 | L ≤ 12 [305] = +1 [25] / -0 | |
| .XX = ±.02 [.51] | ANGLES ± 1° | 12 [305] < L ≤ 60 [1524] = +2 [51] / -0 | |
| .XXX = ±.005 [.13] | | 60 [1524] < L ≤ 120 [3048] = +4 [102] / -0 | |
| | | 120 [3048] < L ≤ 300 [7620] = +6 [152] / -0 | |
| | | 300 [7620] < L = +5%L / -0 | |

THIRD-ANGLE PROJECTION



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SHEET 1 OF 1

ALL DIMENSIONS SHOWN ARE FOR REFERENCE ONLY.

SCALE N/A

| | | | | |
|-----------|--------------------|--------------------|----------------------|----------|
| SIZE A | CAGE CODE 3FKR5 | DRAWN BY K.DANG | ITEM NO. FMSW6348 | REV A |
|-----------|--------------------|--------------------|----------------------|----------|

T-Rev.D